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09/657,532	09/08/2000	Jose Olav Andrade	P2443-559	1655

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EXAMINER

CHEN, PO WEI

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 12/16/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/657,532

Applicant(s)

ANDRADE ET AL.

Examiner

Po-Wei (Dennis) Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on September 22, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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### DETAILED ACTION

In response to an Amendment received on September 22, 2003. This action is final.

The present title of the invention is "Method and Apparatus for Correcting Pixel Level Intensity Variation".

The Group Art Unit of the Examiner case is now 2676. Please use the proper Art Unit number to help us serve you better.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 9, 15, 16, 23, 29, 30, 37, 40, 41 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita (US 4,788,588) and further in view of Mosier (US 5,489,918) and Dresevic et al. (US 6,624,828; refer to as Dresevic herein).

3. Regarding claim 1, Tomita discloses a liquid crystal display apparatus comprising:

A method for providing a consistent visual appearance of one or more pixels of a display screen with respect to a viewing position by compensating for variations between one or more perceived pixel level values associated with the one or more pixels and one or more corresponding pixel level values associated with the one or more pixels, the variations associated with one or more viewing angles between one or more locations of the one or more pixels and the viewing position, the method comprising the steps of: establishing the viewing position ("Provide means for automatically adjusting the luminance or the contrast of a seat back

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mounted liquid crystal display panel as a function of the reclining angle of the seat back to thereby maintain a substantially constant viewing quality for a viewer of the panel” and “the angle of a reclining seat is detected to control a voltage impressed on an electrode of the liquid crystal display apparatus”, see lines 57-62 of column 1 and lines 42-44 of column 3; It is noted that while claim recites compensating variations between one or more pixel level values, to one of ordinary skill in the art it would have been understood at the time of invention that the method disclosed by Tomita of using variations of voltage impressed will indeed change the pixel level values and provide different luminance or contrast of the displaying device thus fully meeting the claim limitation. Therefore, in Fig.4, depending on the visual angle, those curves would use different voltage value to correct the luminance or contrast. It is further noted that while claim recites “viewing position” or “viewing angles”, to one of ordinary skill in the art it would have been understood at the time of invention that by changing the reclining angle of the seat back would provide the means of different viewing position or viewing angles).

It is noted that Tomita does not disclose applying a respective different correction factor to each of the one or more corresponding pixel level values based on a respective one of the one or more viewing angles associated with the each. However, this is known in the art taught by Mosier. Mosier discloses a method and apparatus for dynamically and adjustably generating display which adjust the brightness of each pixel according to the viewing angles (see lines 66-67 of column 29 and 1-16 of column 30 and abstract). While claim recites correction factor, it is clear that by applying the adjustment of brightness of each corresponding pixels functions as applying a correction factor based on the viewing angles. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Mosier with that of

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Tomita because both systems are for providing display correction and compensations based on a viewing angle. Thus, limitation of claim is met.

The combination of Tomita and Mosier does not disclose the viewing position based on one or more received user inputs. Dresevic discloses a method of improving the quality of displayed image utilizing the method (lines 44-47 of column 12 and Fig. 5). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Dresevic to provide better quality of displayed image by using user preference such as viewing position (lines 62-67 of column 2, Dresevic).

4. Regarding claim 2, Tomita discloses a liquid crystal display apparatus comprising:

Step of applying the respective different correction factor further includes establishing one or more different nonlinear correction curves corresponding to the one or more locations, the different non-linear correction curves relating a range of pixel level values to a corresponding range of corrected pixel level values associated with the viewing position (see Fig. 4).

5. Regarding claim 9, Tomita discloses a liquid crystal display apparatus comprising:

Applying an analytical function to generate the different correction factor (See Fig. 4; As can be seen from Fig. 4, different correction factors are generated based on different visual angles).

6. Regarding claims 15, 16 and 23, the statement presented, above, with respect to claims 1, 2 and 9 are incorporated herein.

7. Regarding claims 29, 30 and 37, the statement presented, above, with respect to claims 1, 2 and 9 are incorporated herein.

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8. Regarding claims 40, 41 and 48, the statement presented, above, with respect to claims 1, 2 and 9 are incorporated herein.

9. Claims 3-8, 10, 11, 17-22, 24, 25, 31-36, 38, 39, 42-47, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita (US 4,788,588), Mosier (US 5,489,918) and Dresevic et al. (US 6,624,828; refer to as Dresevic herein) as applied to claims 1, 15, 29 and 40 above, and further in view of Shirriff (US 6,094,185).

10. Regarding claims 3 and 4, Tomita discloses a liquid crystal display apparatus comprising:

Establishing the viewing position and one or more non-linear correction curves for each of the one or more locations relative to the established viewing position ("Even if the screen visual angle is changed in accordance with a change in reclining angle, the directivity of the liquid crystal display unit 2 is automatically corrected in accordance with the reclining angle, so that image quality is not extremely degraded", see lines 45-49 of column 2 and Fig. 4; It is further noted that in Fig. 4, depending on the visual angle, the non-linear correction curve is provided to correct the display).

Tomita does not disclose the viewing position based on one or more received user inputs. Dresevic discloses a method of improving the quality of displayed image utilizing the method (lines 44-47 of column 12 and Fig. 5). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Dresevic to provide better quality of displayed image by using user preference such as viewing position (lines 62-67 of column 2, Dresevic).

The combination of Tomita, Mosier, and Dresevic does not disclose that the correction curves is based on the one or more received user inputs. Also, displaying a calibration pattern on the display screen; receiving one or more user inputs associated with the one or more locations

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responsive to the display of the calibration pattern. Storing the received one or more user inputs with an association to a user identity and processing a user input to obtain the user identity and the one or more stored user inputs associated therewith.

However this is known in the art taught by Shirriff. Shirriff discloses an apparatus and method for automatically adjusting computer display parameters in response to ambient light and user preferences comprising:

“An apparatus to automatically adjust, in accordance with a set of user preferences, a computer display parameter, such as brightness or contrast” (see lines 1-3 of abstract). Also, “FIG. 5 is a graphical representation of user preference values as a function of light signal intensity values (V)...Using standard programming techniques, a graphical interface may be created to present a curve on the display. Standard programming techniques can also be used to allow a user to manipulate the shape of the curve 80” (see lines 1-7 of column 6; It is further noted that Fig.5 is considered as a calibration pattern to adjust the intensity values of the display). And “to determine whether there have been any changes to the user preference setting...If there has been a change in a user preference setting, then control is passed to the preference table update routine 46. As its name implies, the preference table update routine is used to update values in a preference table 42” (see lines 20-27 of column 4 and Fig. 2; It is noted that to one of ordinary skill in the art it would have been obvious at the time of invention to understand the different entries of user preference values are used to identify different users, see table in lines 40-49 of column 4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the teachings of displaying a calibration pattern on the display screen, receiving

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one or more user inputs associated with the one or more locations responsive to the display of the calibration pattern, and establishing based on user inputs by Shirriff to provide the advantage of "to accommodate each user's computer display preferences" and "provides a user with a great deal of control over computer images...so that an image appearing on the computer display 24 accurately reflects the appearance of the image when it is printed on paper" (see lines 33-34 of column 1 and lines 3-9 of column 4, Shirriff).

11. Regarding claims 5, 6 and 10, Tomita discloses a liquid crystal display apparatus comprising:

Detecting a change in a relative orientation between a display orientation and the viewing position ("comprises a detection means for detecting a screen visual angle by detecting the reclining angle of the seat back", see 45-48 of column 1).

Applying a respective correction factor to each of the one or more corresponding pixel level values based on the detected change in the relative orientation. Establishing one or more different non-linear correction curves corresponding to one or more relative orientations between the display orientation and the viewing position; the different non-linear correction curves relating the range of pixel level values to a corresponding range of corrected pixel level values associated with the one or more relative orientations. Applying an analytical function to generate the correction factor ("Even if the screen visual angle is changed in accordance with a change in reclining angle, the directivity of the liquid crystal display unit 2 is automatically corrected in accordance with the reclining angle, so that image quality is not extremely degraded", see lines 45-49 of column 2 and Fig. 4; It is noted that while claim recites correction factor to each of the one or more corresponding pixel level values, to one of ordinary skill in the



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art it would have been obvious at the time of invention to understand the method disclosed by Tomita of using variations of voltage impressed will change the pixel level values and provide different luminance or contrast of the displaying device. Therefore, in Fig.4, depending on the visual angle, those curves would use different voltage value to correct the luminance or contrast. It is further noted that while claim recites "viewing position", to one of ordinary skill in the art it would have been obvious at the time of invention to understand by changing the reclining angle of the seat back would provide the means of different viewing position. Also as can be seen from Fig. 4, different correction factors are generated based on different visual angles).

Tomita does not disclose that the correction factor based on the detected change in the relative orientation is a second one. However, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the teachings of "automatically adjust, in accordance with a set of user preferences, a computer display parameter, such as brightness or contrast" and "FIG 5 is a graphical representation of user preference values as a function of light signal intensity values" (see lines 1-3 of abstract and lines 1-2 of column 6; It is further noted that FIG 5 is a different correction curve that is considered as first one and is produced by user input) by Shirriff to provide the advantage of "to accommodate each user's computer display preferences" and "provides a user with a great deal of control over computer images... so that an image appearing on the computer display 24 accurately reflects the appearance of the image when it is printed on paper" (see lines 33-34 of column 1 and lines 3-9 of column 4, Shirriff).

Also, for claims 7 and 8, Tomita does not disclose determining if the viewing position and a location of the each corresponds to a first reference location; and interpolating using the

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first reference location and a second reference location to arrive at an interpolated correction factor if the determined location of the each does not correspond to the first reference location. However, it would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the teachings of "A determination is then made as to whether the light sensor signal can be directly matched into a user preference table... If the light signal does not result in direct table entry match into the user preference table, then the two closest preference table entries are identified (block 66)... The next step associated with the operations of FIG. 3 is to interpolate a user preference value (block 68) between these table entries (see lines 36-67 of column 4 and lines 1-18 of column 5 and Fig. 3) by Shirriff to provide "an image appearing on the computer display 24 accurately reflects the appearance of the image when it is printed on paper" (see lines 7-9 of column 4, Shirriff; It is further noted that while the claim recites the references locations corresponding to viewing position or the changed relative orientation, to one of ordinary skill in the art it would have been obvious at the time of invention to understand by considering viewing position or the changed relative orientation as user preference values, and the method of interpolation to provide a better light intensity value (see Fig. 5) for the advantage above).

12. Regarding claim 11, Tomita discloses a liquid crystal display apparatus comprising:

Reading one or more sensors indicating one or more of: display orientation and viewing position ("invention comprises a detection means for detecting a screen visual angle by detecting the reclining angle of the seat back", see lines 45-47 of column 1; It is further noted that while claim recites "viewing position", this term is broad enough to encompass visual angle used by Tomita).

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13. Regarding claims 17-22, 24 and 25 the statement presented, above, with respect to claims 3-8, 10 and 11 are incorporated herein.

14. Regarding claims 31-36, 38 and 39 the statement presented, above, with respect to claims 3-8, 10 and 11 are incorporated herein.

15. Regarding claims 42-47, 49 and 50 the statement presented, above, with respect to claims 3-8, 10 and 11 are incorporated herein.

16. Claims 12-14, 26-28 and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita (US 4,788,588), Mosier (US 5,489,918), Dresevic et al. (US 6,624,828; refer to as Dresevic herein) and Shirriff (US 6,094,185) as applied to claims 1, 15 and 40 above, and further in view of Lanier (US 6,400,374).

17. Regarding claims 12-14, Tomita discloses a liquid crystal display apparatus comprising:

One or more sensors include one or more of: a display orientation sensor, a viewing position sensor ("invention comprises a detection means for detecting a screen visual angle by detecting the reclining angle of the seat back", see lines 45-47 of column 1; It is further noted that while claim recites "viewing position", this term is broad enough to encompass visual angle used by Tomita).

Tomita does not disclose a sensor for sensing the position of a remote device coupled to the viewer, a viewer feature tracking sensor and a camera for generating an image associated with a viewer, and a means for analyzing the image to track one or more features associated with the viewer. However, this is known in the art taught by Lanier. Lanier discloses a video superposition system and method comprising:

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A sensor for sensing the position of a remote device coupled to the viewer ("The antenna 6 produces a field which has a characteristic spatial variation, so that the sensor 8 allows detection of the position and orientation of the sensor 8 with respect to the antenna 6. The sensor 8 is mounted at the apex of the bridging portion of a set of headphones", see lines 3-7 of column 8 and elements 6, 8, 10 and 22' of Fig. 1; It is noted that the sensor is coupled to the viewer in Fig. 1).

A viewer feature tracking sensor and a camera for generating an image associated with a viewer and a means for analyzing the image to track one or more features associated with the viewer ("A graphic image system comprising a video camera producing a first video signal defining a first image including a foreground object and a background, the foreground object preferably including an image of a human subject having a head with a face; an image position estimating system for identifying a position with respect to said foreground object, e.g. the head, the foreground object having features in constant physical relation to the position; and a computer, responsive to the position estimating system, for defining a mask region separating the foreground object from said background", see lines 1-11 of abstract; It is noted that the mask region can be considered as a feature extracted associated with the viewer, or the human subject that Lanier discloses).

18. Regarding claims 26-28, the statements presented, above, with respect to claims 12-14 are incorporated herein.

19. Regarding claims 51-53, the statements presented, above, with respect to claims 12-14 are incorporated herein.

***Response to Arguments***

20. Applicant's arguments with respect to claims 1-53 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues: prior art references cited do not disclose establishing viewing position based on one or more received user inputs. However, this is known in the art taught by Dresevic. Dresevic discloses a method of improving the quality of displayed image utilizing the method (lines 44-47 of column 12 and Fig. 5). It would have been obvious to one of ordinary skill in the art to utilize the teaching of Dresevic to provide better quality of displayed image by using user preference such as viewing position (lines 62-67 of column 2, Dresevic).

The applicant argues: prior art references cited do not disclose second correction factor. However, this is known in the art taught by Shriff (lines 1-3 of abstract and lines 1-2 of column 6 and Fig. 4-5). It is noted that the display is automatically adjusted by a set of user preferences such as brightness or contrast with correspond to correction factor. Thus, depending on how many time the user preferences changes, different numbers of correction factors will be applied to the display. Also see lines 50-67 of column 5 of Shriff. It would have been obvious to utilize the teaching of Shirriff to provide the advantage of "to accommodate each user's computer display preferences" and "provides a user with a great deal of control over computer images...so that an image appearing on the computer display 24 accurately reflects the appearance of the image when it is printed on paper" (see lines 33-34 of column 1 and lines 3-9 of column 4, Shirriff).

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***Conclusion***

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kado et al. (US 5,410,609) disclose "Apparatus for Identification of Individuals".

Gu (US 6,002,386) discloses "Automatic Contrast Control of Display Device".

Yamaguchi et al. (US 6,345,111) disclose "Multi-modal Interface Apparatus and Method".

Yoshida et al. (US 6,496,170) disclose "Liquid Crystal Apparatus".

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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***Inquiry***

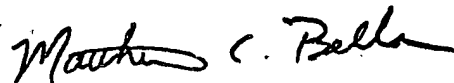
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Po-Wei (Dennis) Chen whose telephone number is (703) 305-8365. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C Bella can be reached on (703) 308-6829. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Po-Wei (Dennis) Chen  
Examiner  
Art Unit 2697

Po-Wei Dennis Chen  
December 11, 2003



**MATTHEW C. BELLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**